

Mergers and Acquisitions in the Defense Industrial Base—Should the US Military Be Concerned?

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Editor's Note: Mergers, consolidation and acquisitions within the industrial base are particularly relevant issues for today's military. The potential impact regarding cost, weapon system support and spares availability is enormous. The article that follows provides a solid introduction to both the issues and potential issues associated with changing conditions in the defense industrial base. The paper on which this article is based was completed in March 1998 as a requirement of the Air War College Resident Program.

Introduction

The successful powers will be those who have the greatest industrial base. Those people who have the industrial power and the power of invention and science will be able to defeat all others.¹

Leo Amery, a noted British imperialist, made this statement over 90 years ago, and in the 20th Century, his declaration was validated by the results of two world wars and a cold war. These conflicts among the world's great industrial powers demonstrated the importance of having the right quality and quantity of advanced weapon systems. These systems were instrumental in the success of the United States and its allies and were provided primarily by the defense industrial base. While there have been many changes over the past century in security affairs, Mr. Amery's declaration remains true today.

In July 1997, Norman Augustine, formerly of Lockheed Martin Corporation, referred to the defense industrial base as "America's fifth armed force."² While some might consider this analogy by the president of the world's largest defense contractor a bit of an overstatement, the successes of the 20th Century demonstrated the importance of the defense industrial base in achieving the nation's security objectives and in executing the national military strategy. The former Chairman of the Joint Chiefs of Staff (CJCS), General Shalikashvili, in his 1997 National Military Strategy Document advises that the success of *Joint Vision 2010* rests on two foundations—one of which is technological innovation.³ General Shalikashvili also stated that success in preparing for an uncertain national security future "demands a stabilized investment program in robust modernization that exploits the RMA (Revolution in Military Affairs)."⁴ The technological innovations and modernization the former Chairman speaks of are provided to the armed forces primarily through the nation's defense industrial base.

The *defense industrial base* is defined as business firms who directly or as subcontractors supply products or services to the Department of Defense (DoD).⁵ This critical capability, which is vital to implementing our national military strategy,

has within the last decade gone through some dramatic changes. These changes can be traced to the significant reduction in defense spending since the mid-1980s. In turn, defense contractors restructured, consolidated or merged to reduce costs and eliminate excess capacity. As a result, the defense industrial base is left with a much smaller number of prime contractors.

This article reviews recent changes within the defense industry and examines the effects such changes might have on the ability to conduct military operations. Specifically, it addresses the significant reduction in large defense firms capable of producing and delivering complex weapon systems and the concentration of market share in some key military product lines. Key issues are presented, to include the expected loss of competition from mergers and consolidation (horizontal integration). Other issues include increased vertical integration among prime contractors and the potential impact of consolidation on technology development. The article concludes with a brief review of key DoD initiatives intended to mitigate these concerns and a review of other options that offer some possible benefits.

Defense Drawdown

Mr. Perry met with industry leaders at what has since been referred to as the *last supper* to inform them there were twice as many prime contractors at the dinner as he wanted to see in five years.⁷

Defense spending has dropped significantly since the peak of the last defense buildup in the mid-1980s. The combination of the American public's desire to cut defense spending combined with the end of the Cold War resulted in the fourth major drawdown since the end of World War II. As a result, overall defense spending was cut by about one-third. The procurement portion of the budget shrunk even further. This portion of the defense budget, which is used to procure weapon systems and most equipment needed to conduct military operations, is down over 65 percent since the peak spending of the Reagan years.⁶

Because of the significant decline in defense spending and

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with encouragement from the DoD, the defense industry restructured to reduce costs. This was done by either eliminating excess plant capacity or divesting their defense business. For a number of defense contractors who remained, they began to acquire other defense business entities through mergers and acquisitions. The DoD encouragement for restructuring came on one occasion in 1993 from then Deputy Secretary of Defense William Perry. Mr. Perry met with industry leaders at what has since been referred to as the *last supper* to inform them there were twice as many prime contractors at the dinner as he wanted to see in five years.⁷ His objective was aimed at telling these industry leaders he envisioned a future industrial base with a few strong prime contractors operating facilities at near full capacity instead of a larger number of contractors operating inefficiently at significantly reduced capacity. In order to assist industry with the restructuring required after a merger or acquisition, a policy review completed in July 1993 determined that contractors could obtain reimbursement for restructuring costs if it was determined to be in the best interest of the government.⁸ According to Dr. John Deutch—then Under Secretary of Defense for Acquisition (USD(A))—when he approved the decision the DoD had sound rationale for the policy update.

For over 5 [*sic*] years now, powerful economic forces have been at work shaping our Nation's defense industries. Chief among these is the tremendous decline in the overall DoD budget. Like other businesses in the face of a [*sic*] shrinking customer base, US defense manufacturers must respond. They must consolidate facilities, reduce overhead, look for new markets and eliminate excess capacity to remain competitive and financially viable and they are doing just that.⁹

Dr. Deutch went on to say in his testimony before Congress, that the DoD and taxpayers could save "billions of dollars in costs" through these restructurings and estimated the potential savings from one and a half to seven times the restructuring costs.¹⁰ He also stated if these costs were not reimbursable it would "discourage the rational downsizing and restructuring that we need."¹¹ The expectation was the government would see these savings in future cost-type contracts. As of March 1997, the DoD had permitted contractors to claim over \$700M in restructuring costs based on expected savings of nearly \$4B.¹²

Combined with the reduced defense spending and encouragement and financial assistance from the DoD, the defense industry quickly responded with more merger and acquisition activity. According to a Defense Science Board Task Force, this contraction in defense spending resulted in more large-scale industry consolidation than at any other time since after World War II.¹³

Merger and Acquisition Activity

The magnitude of the merger and acquisition activity within the US defense industry has been remarkable given the relatively short period of time in which it has occurred. Based on a report by the Defense Science Board released in the spring of 1994, over 300 defense related mergers and acquisitions occurred during the previous 15 years in the US.¹⁴ The five largest defense contractors at the end of 1996 have evolved from the consolidation of no less than 50 business

units since the early 1980s.¹⁵ About 30 of those mergers and acquisitions occurred just since the early 1990s.¹⁶

Two significant consolidations involved The Boeing Company. In December 1996, Boeing announced its plan to merge with the McDonnell Douglas Corporation. This deal, which cost approximately \$14B, created a firm with expected annual sales revenue of about \$50B and 200,000 employees.¹⁷ In addition, Boeing completed the acquisition of the defense operations of Rockwell Space and Defense in December 1996.¹⁸ This acquisition cost Boeing approximately \$3B and combined with the McDonnell Douglas deal established the company as the second largest US defense contractor.²⁰

In sum, there has been a significant number of mergers and acquisitions within the defense industrial base during the past 20 years. This consolidation has left the DoD with just a handful of prime contractors capable of producing complex weapon systems. An obvious question is whether or not this period of massive industry consolidation has or will impact these contractors' capability to provide high quality, affordable weapon systems necessary for military operations in the 21st Century.

The US military should be concerned about . . . the effect a loss of competition might have on the DoD's ability to acquire the most advanced weapon systems at an affordable price.

Issues and Concerns

The US military should be concerned about both the level and magnitude of mergers and acquisitions within the defense industrial base. The overarching reason stems from a potential loss of competition and the effect a loss of competition might have on the DoD's ability to acquire the most advanced weapon systems at an affordable price.

Members of Congress have recognized the potential problems associated with mergers. According to US Senator Bob Smith (Republican, New Hampshire), a member of the Senate Armed Services Subcommittee on Acquisition and Technology:

I believe these mergers are a survival issue for the companies involved, but my biggest concern is that America's defense industrial base is shrinking considerably, and I'm not sure anyone has really thought through the big picture in terms of what that means to our national security. I don't think it's particularly healthy to have two or three major defense contractors controlling 70-80 percent of the industrial base.²⁰

Unfortunately, even with the interest at senior levels of government there does not appear to be much solid data which unequivocally identifies if there *is* or if there *is not*, a competition problem. In fact, the General Accounting Office

(GAO) indicated in a January 1997 report on this topic that "there is little consensus on how to measure competition."²¹ However, there is sufficient concern to warrant some action to curtail further consolidation until a detailed analysis can be completed. As a start, the DoD and the GAO should investigate more accurate means for measuring competition to confirm the extent of the problem.

Market Concentration

The defense industry has become significantly more concentrated in certain defense industry sectors. Looking back to the end of World War II, the US had 26 aircraft, 16 tank, 22 missile and 36 ship and submarine manufacturers.²² As recent as 1994, these numbers had decreased to seven aircraft, two tank, nine missile and five ship and submarine contractors.²³ By 1996, according to the Defense Logistics Agency (DLA), the US possessed only two contractors who produced bomber aircraft, four who produced fighter aircraft, one tank contractor, one strategic missile contractor and two expendable launch vehicle contractors.²⁴

DoD Industry Market Share²⁵

Fixed-Wing Aircraft

In 1996 total fixed-wing aircraft purchases exceeded \$12.5B.²⁶ Boeing (McDonnell Douglas) accounted for over 68 percent of the market share. Lockheed Martin and Northrup Grumman sales accounted for almost 29 percent of total sales.²⁷

Aircraft Engine Sales

Total aircraft engine purchases in 1996 reached almost \$4B.²⁸ Sales for the top three companies exceeded 78 percent of the total.²⁹ United Technologies led in market share with over 41 percent, General Electric acquired just over 25 percent and a foreign firm, Rolls Royce PLC captured just over 12 percent of the market.³⁰

Helicopters

Two companies dominated the helicopter market: Boeing (McDonnell Douglas) and United Technologies. Total sales in 1996 exceeded \$1.2B with Boeing capturing about 37 percent and United Technologies held 36 percent of the DoD market.³¹ The next competitor, Textron Inc., had just over 9 percent of the market.³²

Missiles

Missile sales in 1996 exceeded \$3.6B when two market competitors acquired over 84 percent of sales: Lockheed Martin and Raytheon (Hughes).³³ Raytheon captured over 42 percent and Lockheed Martin just below 42 percent.³⁴

The defense market is in fact concentrated in certain defense-unique product areas. In markets such as tanks, military aircraft and helicopters and missiles only four or less legitimate competitors exist. The potential loss of competition in the defense industrial base does not stop with the horizontal mergers discussed.

Vertical Integration

Vertical integration is the ability of a prime contractor to produce the subsystems and components necessary to deliver a completed defense product or weapon system. When contractors prepare proposals in response to a government Request For Proposal for a major system, they develop a *make*

or buy plan. This plan includes the details of the prime contractor's intent to internally produce the subsystems and components or subcontract for the production of these items to suppliers outside of the company. What consolidation has done is increase the level of vertical integration throughout industry and raised concerns over anti-competition practices. The DoD was concerned enough with this issue in 1996 to charter a Defense Science Board Task Force to look into the matter. The task force identified four key vertical integration concerns.³⁵ These were large contractors who might: (1) prefer newly acquired suppliers over external suppliers even if the external suppliers were superior; (2) increase barriers to market entry for their competitors; (3) compromise proprietary information obtained on competitors through acquisition of their competitor's supplier(s); and (4) refuse to use suppliers owned by their competitors.³⁶

The DSB report concluded that consolidation within the defense industrial base has increased vertical integration among some firms.³⁷ While this was not viewed as a primary goal of market consolidation, it has occurred and presents an opportunity for prime contractors to manipulate competition to their advantage. During Senate confirmation hearings, Mr. Jacques Gansler, the Under Secretary of Defense for Acquisition and Technology, expressed a major concern for ensuring adequate competition at the subcontractor level for the defense industry.³⁸ Maintaining competition at the subcontractor level is a key approach to deal with the extensive horizontal consolidation in the defense industrial base.

Technology Development

Another area of concern caused by consolidation is the increased concentration of defense prime contractors who perform R&D.³⁹ This was a significant portion of the over \$22B awarded for 1996 and gave these firms a significant advantage over the rest of the defense market in being able to maintain the latest facilities and staffs.

In addition to the loss of competition from market concentration among R&D firms, prime contractors in many cases have shown a reticence to invest their own funds in developing new and innovative technologies. Without the pressure of adequate competition, what incentive do these firms have to pursue the types of technological advances necessary to field the world's best weapon systems? In a limited competition environment, they can settle for their existing portion of the defense procurement budget and postpone R&D, in order to cut costs, without concern for loss of market share. This type of behavior was mentioned in a *Washington Post* article that suggested in the case of market duopoly:

... well-matched competitors almost never get into wars over prices or innovation. The reason is simple: they both usually come out losers if they do.⁴⁰

The rationale suggests that two competing firms are often unwilling to take on the risk of developing new technology because each could match the other's efforts and the result could be no change in market share.⁴¹ This situation is further illustrated in both Europe and Japan. Governments in both regions discovered there was less breakthrough innovations in markets of very limited competition because they discourage innovation.⁴²

Initiatives to Deal With the Consolidated Industry

In June 1993, the Under Secretary of Defense for Acquisition provided US policy objectives for the defense industrial base.⁴³ These objectives included the need to sustain production capability to support military operations, maintaining an advanced R&D capability and a reconstitution capability in case of national emergency or war.⁴⁴ This policy was transformed into a strategy that emphasized maximum use of the commercial sector while preserving the unique capabilities of the defense industrial base. To assist in the effort, the DoD further refined its approach. Acquisition Reform initiatives included revising directives and regulations to maximize use of commercial business practices in the acquisition process, eliminating use of unnecessary military specifications and standards and encouraging development of dual-use technologies and flexible production methods. In addition to these initiatives, which are primarily aimed at reducing barriers for industry participation, the DoD has also taken some steps to protect those industrial areas that are unique in their defense orientation.

Antitrust Review Policy and Process

One step taken within the DoD to deal with defense industry consolidation was to charter a Defense Science Board Task Force to look into the antitrust aspects of mergers and acquisitions. The DoD acknowledged their participation in antitrust reviews was lacking and directed the task force to "provide advice on the Department's participation in antitrust review of defense industry mergers and joint ventures."⁴⁵ The task force, cosponsored by the Under Secretary of Defense for Acquisition and Technology and the General Counsel, concluded that existing merger guidelines used by the antitrust agencies (Antitrust Division of the Department of Justice and the Federal Trade Commission) were adequate for this period of defense industry consolidation and the antitrust agencies were receptive to the DoD involvement in such reviews.⁴⁶ Following the release of their report, the DoD formalized its policy on participation in antitrust reviews in *DoD Directive 5000.62*. According to a subsequent task force formed in May 1996 to look at vertical integration within the defense industry, the DoD involvement in the antitrust process is now working well.⁴⁷

Some techniques used by the antitrust agencies to resolve competition-based antitrust concerns are forcing the divestiture of business entities or the creation of a *firewall* between business entities. The firewall is intended to prevent anti-competitive behavior while permitting a proposed consolidation to occur. One example of such an action occurred during the review of the Lockheed and Martin Marietta merger in 1995. A firewall was established that prevented Martin Marietta from making any changes to its LANTIRN (Low Altitude Navigation and Targeting Infrared for Night) system that would discriminate against other domestic aircraft producers who might compete with Lockheed.⁴⁸

Vertical Integration

A preventive step taken by the DoD to protect the defense industrial base addresses the concerns of vertical integration. The potential exists for prime contractors with a high level of vertical integration to limit or control competition. One example is a prime contractor compromising proprietary design and

production information belonging to a competing firm.⁴⁹ The proprietary information could be obtained from a newly acquired subcontractor who previously was subcontracted to the firm who owns the information. In turn, this could lead to a contractor relying on the technological innovation of a competitor. Other examples that could lead to limiting competition include preference of internal suppliers over external suppliers, not using suppliers owned by competing firms and increasing market barriers for entry of competitors.⁵⁰ All these actions can lead to a prime contractor manipulating the market to an unfair advantage.

The Defense Science Board Task Force concluded that industry consolidation had resulted in increased vertical integration among defense prime contractors. The task force recognized that the DoD was already dealing with vertical integration through its participation in antitrust reviews and through management of existing acquisition programs. The task force felt the antitrust review process was adequate to address both vertical and horizontal competition concerns, however, the management of DoD acquisition programs required some additional protective measures.⁵¹ To deal with the concerns, the task force made five specific recommendations to focus the DoD's awareness of the effects of vertical integration.⁵² They suggested that the DoD should:

1. Monitor key product areas that affect multiple programs; program managers should manage potential vertical integration problems within their own programs.
2. Foster competition and innovation through appropriate acquisition and technology strategies.
3. Pay close attention to the potential antitrust problems caused by vertical integration.
4. Update acquisition education programs to improve the ability of the acquisition workforce to deal with vertical integration concerns.
5. Develop some tools or indicators to measure potential problem areas in vertical integration. Suggested indicators included identifying product areas where less than three prime competitors remained, tracking prime contractors decisions to change from a *make* to a *buy* decision in critical technology areas and tracking competitors' capabilities in discriminating technologies developed under DoD funding.

As a result of the report, the Under Secretary of Defense for Acquisition and Technology issued a memorandum implementing these recommendations.⁵³ He directed the Deputy Under Secretary for Defense (Industrial Affairs and Installations) to lead in implementing the recommendations.

Other Options to Consider

Even with the Revolution in Military Affairs and the emphasis on commercial technologies to meet defense needs, there is still a requirement for some unique weapon systems and military equipment that cannot be provided by the commercial sector. Examples include missiles, munitions, fighter and bomber aircraft, nuclear submarines, tanks and artillery systems. For those products, efforts must be made to preserve unique and specific capabilities within the defense industrial base. In order to preserve these kinds of capabilities other alternatives need to be considered.

Foreign Participation

One option to consider is allowing foreign firms to participate in the competition for unique defense systems. However, it must

be recognized that the European industrial base has been in the process of consolidation in much the same fashion as in the US.⁵⁴ Given the limited number of prime contractors that remain for certain product areas, this option offers the possibility of increased competition and associated benefits. More than likely, this option would face many legal, political and technical hurdles before it could become a reality. Legislative reform would be required to permit increased foreign purchases. For instance, the Buy American Act of 1933 requires weapon systems bought by the federal government to be procured from US businesses or approved designated countries.⁵⁵ Such a legislative change would surely face opposition by US organized labor. However, there are subcontracting possibilities. Currently, foreign firms are providing some subsystems and parts to the DoD. In 1996, Rolls Royce PLC was the third largest supplier to the DoD for aircraft engines.⁵⁶ Rolls Royce PLC received over 12 percent of the total value of engine contracts.

Subsidizing Critical Product Areas

Subsidizing to keep an industrial capability is also an option that should be considered. This approach may be necessary when competition is extremely limited—or when only a single contractor exists. Subsidizing maintains some level of competition by keeping additional firms in the market. Unfortunately, this approach is not considered very cost-effective when market demand does not support additional firms. The trade-off is whether or not it is more cost-effective to subsidize an additional contractor or pay the additional cost, in higher prices, in a less competitive market. The cost to keep an additional contractor viable could be viewed as insurance and could be offset by the savings received from competition within the market. This kind of subsidy is usually provided in the form of limited production quantities to keep a production line operating.

Another consideration when making a decision to subsidize is whether or not a surge capability is needed. In previous years, the DoD has in fact maintained such capabilities. The practical decision that must be made is the degree of surge capability required and the amount of surge capability that can be afforded.

Nationalizing Defense Unique Industry

Nationalizing the defense-unique portion of the industrial base is also another option. While this is contrary to current competitive sourcing and privatizing initiatives, it may become necessary to protect any unique defense areas of the industrial base that otherwise would not survive. This approach has been used in foreign countries where tight government controls were required in the absence of competition in the market to control prices. While this approach may not be necessary at the present, it should not be dismissed from future consideration.

Summary

If the conflicts of the 20th Century have taught us anything, it should be that the US cannot always pick when or where the next major military conflict will occur. Even during the bipolar era of the Cold War, the US did not always know. And while the current threat does not risk our national existence, the US still faces an uncertain world where a major military response may be necessary to protect vital US interests or those of our

allies.

To deal with these uncertainties, the US must maintain a responsive industrial capability to provide the weapons and equipment necessary to respond to such threats. This is especially important for those unique defense systems such as military aircraft, tanks, ships and missiles.

The defense industry has reached a point where there is not much room for additional horizontal consolidation. Presently, only a handful of major firms remain to provide these advanced weapon systems and the risk to competition has become significant. The government response to maintaining competition during this consolidation has seen limited success and more must be done. First, further investigation is necessary to adequately measure the effects of consolidation on competition. In addition, we need to look at some near term options that could provide success such as limiting further vertical integration and expanding opportunities for foreign firms. Other options such as subsidizing unique defense product areas or even nationalizing offer some potential for relief but involve significant government oversight and cost. With declining—or at best, level—defense budgets for the foreseeable future, the DoD must find a cost-effective means for dealing with this issue and must do so in such a fashion to keep the US combat forces supplied with the most advanced weapon systems necessary to carry out the mission of *Joint Vision 2010* and beyond.

Notes

1. Kennedy, Paul M., *The Rise and Fall of The Great Powers*, New York: Random House Inc., 1987, 196.
2. Grier, Peter, "The Materiel World," *Air Force Magazine*, Vol. 80, No. 10, Oct 97: 53.
3. Shalikashvili, John M., General, "Shape, Respond, Prepare Now—A Military Strategy for a New Era," *National Military Strategy*, 1997, [Online], Available: <http://dtics1.dtic.mil/jcs/nms/strategy.html>, (15 Sep 97).
4. *Ibid*.
5. Defense Science Board Task Force, *Vertical Integration and Supplier Decisions*, Washington, DC: Office of the Secretary of Defense, May 97, 5.
6. *Ibid*, 7.
7. Grant, Charles, "Linking Arms—Land of the Giants," *The Economist—A Survey of the Global Defence Industry (supplement to The Economist 343, No. 8021)*, 14 Jun 97, 6.
8. Deutch, John M., Under Secretary of Defense, memorandum to Commander, Defense Contract Management Command, subj: Allowability of Restructuring Costs on Novated Contracts, 21 Jul 93.
9. House, *DoD Policy on Defense Industry Mergers, Acquisitions and Restructuring: Hearing before the Oversight and Investigations Subcommittee of the Committee on Armed Services*, 103rd Cong., 2d sess., 27 Jul 94, 4-5.
10. *Ibid*, 5.
11. *Ibid*, 6.
12. Kaminski, Paul G., Under Secretary of Defense for Acquisition and Technology, "Fielding Equipment Second to None," *Defense Issues*, Vol. 12, No. 16, Prepared remarks to the Acquisition and Technology Subcommittee, Senate Armed Services Committee, 19 Mar 97, 16.
13. Defense Science Board Task Force, *Vertical Integration and Supplier Decisions*, Washington, DC: Office of the Secretary of Defense, May 97, 7.
14. Defense Science Board Task Force, *Antitrust Aspects of Defense Industry Consolidation*, Washington, DC: Office of the Under Secretary of Defense for Acquisition and Technology, Apr 94, 9.
15. Credit Suisse First Bank in Defense Science Board Task Force report, "Vertical Integration and Supplier Decisions," Washington, DC, May 97, 7. Credit Suisse terms the current consolidation the "second wave" of consolidation and terms an earlier set of more generally modest transactions

(Continued on bottom of page 42)

- in the 1980s as the "first wave." Note: Dollar values for annual transactions are provided by Credit Suisse through 1994; dollar values for 1995-1996 are provided by the DoD.
16. *Ibid.*
 17. Pearlstein, Steven and John Mintz, "Too Big to Fly?" *Washington Post*, 4 May 97, H01.
 18. Money, Arthur L., Assistant Secretary of the Air Force (Acquisition), Memorandum to Deputy Under Secretary of Defense (Industrial Affairs & Installations), subj: Lockheed Martin's Proposed Acquisition of Northrup Grumman, Attachment 2, 7 Aug 97.
 19. "Top 100 Defense Contractors," *Government Executive*, Aug 97, [Online], Available: <http://www.govexec.com/top200/topdod.htm> (20 Oct 97). Based on dollar value of defense contracts (over \$25K) awarded in 1996.
 20. Kitfield, James, "Two-Minute Warning Sounds," *Government Executive*, Aug 97, [Online], Available: <http://www.govexec.com/procure/articles/97top/97topkit.htm>, (20 Oct 97).
 21. United States General Accounting Office, *Defense Industry Trends in DoD Spending, Industrial Productivity, and Competition*, GAO/PEMD-97-3, Washington, DC: General Accounting Office, Jan 97, 16.
 22. *Ibid.*, 64.
 23. *Ibid.*
 24. Gutmanis, Ivars and John F. Starns, "Whatever Happened to Defense Industrial Preparedness?" *Joint Force Quarterly*, Summer 1997, 28.
 25. Velocci, Anthony L., Jr., "US Plays Out Merger Endgame," *Aviation Week and Space Technology*, Vol. 147, No. 2, 14 Jul 97: 63.
 26. "Top 200 Contractors 1997," *Government Executive*, Aug 97, [Online], Available: <http://www.govexec.com/top200/topfix.htm>, (20 Oct 97).
 27. *Ibid.*
 28. "Top 200 Contractors 1997."
 29. *Ibid.*
 30. *Ibid.*
 31. "Top 200 Contractors 1997."
 32. *Ibid.*
 33. "Top 200 Contractors 1997."
 34. *Ibid.*
 35. Office of the Secretary of Defense, Defense Science Board Task Force on Vertical Integration and Supplier Decisions, Washington, DC: May 97, 3.
 36. *Ibid.*, 3-5.
 37. *Ibid.*, vi.
 38. Bender, Bryan and Vago Muradian, "Gansler Suggests Merger Mania Needs a Breather," *Defense Daily*, 2 Oct 97, 2.
 39. "Top 200 Contractors 1997."
 40. "Too Big to Fly?", H01.
 41. *Ibid.*
 42. *Ibid.*
 43. Leibstone, Marvin, "Corporate Merger-Mania: Good or Bad for US Defence?" *Military Technology*, Vol. 20, No. 6, Jun 96: 174-176.
 44. *Ibid.*
 45. *Ibid.*
 46. Office of the Undersecretary of Defense for Acquisition & Technology, Defense Science Board Task Force on Antitrust Aspects of Defense Industry Consolidation, Washington, DC: Apr 94, 1.
 47. Office of the Secretary of Defense, Defense Science Board Task Force on Vertical Integration and Supplier Decisions, Washington, DC: May 97, 29.
 48. *Ibid.*, D-5.
 49. *Ibid.*, 4.
 50. *Ibid.*, 3-5.
 51. *Ibid.*, vii.
 52. *Ibid.*, viii.
 53. Kaminski, Paul G., Memorandum on "Vertical Integration," subj: Improving Acquisition Processes to Address Industry Vertical Integration, *Inside the Air Force*, 16 May 97: 13-14.
 54. Morrocco, John D., "EC Outlines Path For Consolidation", *Aviation Week and Space Technology*, Vol. 147, No. 14, 6 Oct 97: 24-25.
 55. Gansler, Jacques S., *Defense Conversion—Transforming the Arsenal of Democracy*, Cambridge, Massachusetts: The MIT Press, 1995, 43.
 56. "Top 200 Contractors 1997."

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